CIVIL ENGINEERING

Volume 8

January—December 1938

The Society is not responsible for any statements made or opinions expressed in its publications.

Reprints from this publication may be made on condition that full credit be given CIVIL ENGINEERING *and the author, and that date of publication be stated.*

COPYRIGHT, 1938, BY THE
AMERICAN SOCIETY OF CIVIL ENGINEERS
Printed in the U. S. A.

Published by the
American Society of Civil Engineers
33 West 39th Street, New York, N.Y.

INDEX TO CIVIL ENGINEERING

January—December 1938

SUBJECT INDEX

AERONAUTICS
"A Decade of Progress in Air Transportation." S. R. Newman ... 679
Improved forecasting to meet needs of aviation ... 323
See also Airplanes: Surveying, Aerial

AEROPROJECTORS
"Mapping with the Multiplex Aeroprojector." W. S. Higginson ... 663

AIR SANITATION
"Aspects of Air Sanitation." E. B. Phelps ... 166

AIRPLANES
"A Decade of Progress in Air Transportation." S. R. Newman ... 679

ALGEBRA
"Solving Quadratics by Slide Rule." Joseph Barnett ... 117

ALUMINUM
"Aluminum—How and Why." Francis C. Frary ... 19
"Aluminum Mountings for Aerial Survey Mosaics." John P. Koch ... 206
Discussion: Raymond G. Moses, 416

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
International problems discussed ... 369

AMERICAN ENGINEERING COUNCIL
"Make Work Relief Projects Worth While" ... 428
Discussion: Max J. Gleissner, 615
News ... 222, 292, 362, 428, 495, 630, 770

AMERICAN GEOPHYSICAL UNION
Data on effects of shortening the inch ... 787

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
Elects officers ... 562

AMERICAN MATHEMATICAL SOCIETY
Semi-Centennial of ... 862

AMERICAN RAILWAY ENGINEERING ASSOCIATION
Society members honored by ... 369

AMERICAN SOCIETY OF CIVIL ENGINEERS
"Aims and Activities"
New edition of ... 287
Alfred Noble Prize
See Awards.
American Water Works Association
Honors two Society members ... 227
Annual Convention (1938) ... 417, 483, 554, 627, 633
Annual Meeting (1938) ... 41, 126
Annual Meeting (1939) ... 842
Applications for Membership
For admission and transfer ... 78, 148, 232, 302, 374, 439, 505, 565, 640, 709, 790, 867
Awards
Alfred Noble Prize ... 418
Columbia University Scholarship ... 285
Freeman Scholarship ... 221, 556
Indiana Section establishes unique Junior award ... 558
J. Waldo Smith Fund ... 215
McLaughlin Award perpetuated ... 418
Society medals and prizes ... 51, 762
See also Student Chapters
Badge
Badges with histories ... 556
For Christmas gifts ... 770
Ballots
Anonymous voters ... 699
See also Officers: Official Nominees ...
Board of Direction
Abstract of minutes of meetings 213, 214, 419
Excerpts from Annual Report ... 128
"Rochester Meeting of Board of Direction" ... 713
"The Board of Direction Meets at Salt Lake City" ... 571
The first Board dinner. Henry B. Seaman ... 481
By-Laws
Amendment to Art. I, Election of members ... 421
Amendment to Art. IV, Committees. 619, 847
"Civil Engineering"
Art helps photography ... 62
Can the joke be on the camel? ... 223
Editorship of "Civil Engineering" ... 289
Errors in captions ... 36
Index for ... 854
Local Sections supply articles for "Civil Engineering" ... 430
November issue to be given to students ... 699
Subscriber on the defensive. C. E. Bowron ... 482
Colorado Section
"The Oldest Section?" R. E. Van Liew 132
Columbia University Scholarship
See Awards
Conservation of Water Committee
Activities and plans of ... 59
Report ... 700
Constitution
Allocation of Members Not Resident in North America ... 625
Report on amendment on nomination and election of officers ... 364
Vote on Constitutional revisions ... 763
Cuts
Last call for discarded cuts ... 133, 852
Deceased Members
See Membership; Memoirs of Deceased Members
Degrees, Academic
Additional honorary degrees for members ... 562, 787
Awarded to members ... 501, 635
Honorary degrees as a measure of professional progress ... 64
Districts and Zones
Allocation of members not resident in North America ... 625
District meeting in Houghton, Mich. 491, 698
No change made in ... 221
Engineers and Engineering
"The Society as Leader of the Profession." Henry Earle Riggs ... 507
Fall Meeting (1938) 555, 618, 691, 761
Fees
Schedule of fees for structural and foundation engineering on government housing projects ... 621
Fees Committee
Leaflet on fees reprinted ... 496
Resolution by ... 763
Filtering Materials Committee
Original records on filtering materials ... 64
Finances
An analysis of Society finances ... 356
Freeman Scholarship
See Awards
Fundamentals Controlling Structural Design, Committee on
Report ... 201
"Headlines"
Publication of ... 621
Hydraulic Research Committee
Report ... 194
Hydraulics Division
Authorized ... 423
In and About the Society ... 289, 361, 429, 496, 629, 701, 858
Indiana Section
Establishes Junior award ... 558
Goes picnicking ... 556
Juniors
Indiana Section establishes unique Junior award ... 558
"Problems Before the Society." Louis E. Ayres ... 764
Lectures
Lantern lectures ... 770
Life Members
New and old, receive certificates ... 60
Local Sections
"Administering a Local Section." E. L. Warner ... 632
Areas defined ... 134
Delegates meet at Jacksonville ... 418
Established in Mohawk-Hudson and Wyoming areas ... 425
Hold fall outings ... 766
"Local Section Administration." W. M. Spann ... 850
New Sections have their first meeting ... 492
News of ... 66, 138, 223, 293, 364, 430, 496, 559, 634, 703, 771, 858
Northern Conference of ... 848
Passage of Texas license law result of drive by Local Section ... 63
Prizes awarded to students ... 767
"Problems Before the Society." Louis E. Ayres ... 764
"Publicizing Local Section Activities." Ralph G. Wadsworth ... 633
Sections supply articles for "Civil Engineering" ... 430
"The Oldest Local Section?" ... 131
Western Sections discuss professional activities ... 622
See also names of Local Sections
McLaughlin Award
See Awards
Manuals
A modern fable with apologies to Aesop. (Manual No. 14) ... 296
Manual on surveying terms issued ... 220
Manual No. 13 ... 64
Manual No. 14 ... 58
Medals
See Awards
Meetings
Abstract of minutes of Society meeting ... 221
District meeting in Houghton, Mich. 491, 698
Florida and its first Society meeting ... 212
Minutes of March Society meeting ... 364
Society business meeting to be held March 16 ... 221
Student reporters at Society meetings ... 556
See also names of meetings; names of Local Sections.
Membership
Deceased members ... 75, 145, 228, 299, 371, 437, 502, 563, 638, 706, 788, 864
Honorary members elected ... 54, 762
Membership grade changes ... 76, 146, 230, 300, 372, 438, 503, 564, 639, 707, 789, 865
Net gain for 1937 ... 130
Twenty-five old friends ... 357
Two Society members honored by A.W.W.A ... 227
Memoirs of Deceased Members
Memoirs available ... 64, 559
Meteorological Data Committee
Report ... 196
Mid South Section
Meeting of ... 853
Mohawk-Hudson Section
Organization approved ... 425
Has first meeting ... 492
Morgan, Arthur E.
Resolution adopted by Board of Direction relating to ... 359
Officers
Final Ballot for 1938 ... 130
Officers' dinner precedes Annual Meeting ... 217
Report on Constitutional amendment on nomination and election of ... 364
See also President

Issue	Page Numbers
January	1– 82
February	83–152
March	153–234
April	235–304
May	305–374
June	375–440
July	441–506
August	507–568
September	569–642
October	643–710
November	711–794
December	795–868

Official Nominees
Ballots for ... 699
Biographical sketches of ... 843
D. H. Sawyer nominated as President. 761
Results of First Ballot for ... 627
Results of Second Ballot for ... 765, 769
Oregon Student Chapter
Features Sunday breakfasts ... 137
Papers
Construction papers available ... 631
See also "Transactions."
Pittsburgh Section
Honors George S. Davison ... 358
Power Division
Report of Executive Committee ... 201
President
A busy President ... 494
Donald H. Sawyer nominated as ... 761
"Early Presidents of the Society." 61, 136, 219, 288, 360, 424, 492, 557, 628, 702, 766
Discussion: 38, 120, 354, 758, 759, 760
Sketch of Henry Earle Riggs ... 125
Prizes
See Awards
"Proceedings"
A chance to disagree ... 133
Forecast ... 65, 133, 222, 292, 363, 428, 630, 700, 767, 851
Issue of "Transactions" warrants discarding of "Proceedings." ... 701
Professional Division
Report on proposed ... 620
Professional Objectives Committee
Amendment to By-Laws on ... 847
Personnel ... 763
Report on ... 620
Public Works
Report of Special Committee on federal department of ... 624
Publicity
For 68th Annual Convention ... 627
Jacksonville meeting well publicized ... 492
New publicity program for the Society ... 555
"Publicizing Local Section Activities." Ralph G. Wadsworth ... 633
Student reporters at Society meetings ... 556
Records of the Society
Unusual use of ... 492
Registration of Engineers
Passage of Texas license law ... 63
Reporters
Student reporters at Society meetings ... 556
Reprints
Construction papers available ... 631
Research Committee
Abolished ... 847
Sacramento Section
Has its 750th meeting ... 558
St. Louis Section
Celebrates 50th anniversary ... 285
"The Oldest Section?" C. D. Purdon, S. Bent Russell, Edward Flad, Edward E. Wall ... 131
Salaries Committee
Progress on salary studies ... 285
San Francisco Section
"The Oldest Section?" T. J. Corwin, Jr. 131
Sanitary Engineering Division
Adopts resolution on water pollution ... 218
Smith, J. Waldo Fund
See Awards
Society Appointees and Representatives. 64, 137, 293, 364, 423, 496, 627, 703, 769, 854
Soil Mechanics and Foundations Division
Report ... 358
Activities of ... 855
Spring Meeting, 1938 ... 277, 355, 492
Stresses in Railroad Track Committee
Report ... 196
Student Chapters
A prize winning student paper ... 768
Annual Reports ... 773
Certain chapters win commendation ... 221
Great Plains Student Conference ... 63
Midwest Student Chapters organize ... 491
New England Student Chapters hold first conference ... 492
Notes ... 69, 141, 226, 367, 433, 860
November issue to be given to students on request ... 699
Recent conferences ... 422
Regional conference of North Carolina Chapters ... 62
Student prizes awarded ... 767
"The Civil Engineering Student and the Society." Enoch R. Needles ... 359
Technical Aspects of Refuse Disposal Committee
Report ... 202
Technical Divisions
Executive Committees of ... 763
New Enrollment list for ... 855
"Problems Before the Society." Louis E. Ayres ... 764
See also names of Technical Divisions
Tennessee Valley Section
Plans a 3 day Annual Meeting ... 769, 853
Texas Section
Has gala two day Spring Meeting ... 427
Meeting of ... 853
"Transactions"
Construction papers available ... 631
Issue of "Transactions" warrants discarding of "Proceedings." ... 701
Paper 2,000 published ... 698
Unionization Committee
Report ... 216
Wyoming Section
Has first meeting ... 492
Organization approved ... 425
Year Book
Issued with April "Proceedings." ... 286
New Year Book under way ... 137
Society Year Book for 1902 wanted ... 59

AMERICAN SOCIETY OF ENGINEERS
Mysterious organization again active ... 59

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Elects officers ... 786

ANCHORAGE
"Esthetics of Bridge Anchorages." Aymar Embury, II ... 85
Piers and anchorage of the Thousand Islands International Bridge ... 408

AQUEDUCTS
"A Drilling Rack for Shaft Sinking." Sidney M. Marks ... 838
"Construction Methods at Cajalco Reservoir." R. B. Ward ... 377
"Large Delivery Lines for the Colorado River Aqueduct System." Julian Hinds ... 469
"Machines and Methods for Canal Construction, Colorado River Aqueduct." W. L. Chadwick and G. E. Archibald ... 104
"The Delaware Water Supply System of the City of New York." Roger W. Armstrong ... 581

ARCHES
"All-Steel Exhibition Building in Germany." H. Orbanowski ... 330
De Havilland's arch ... 636
"Segmental Division for Arch Analysis." Joseph A. Wise ... 34

ARCHITECTS
"The Architect and the Engineer." Aymar Embury, II ... 3

ARCHITECTURE
"Architectural Principles of Bridge Design." W. J. Watson ... 181
Discussion: 353, 482, 552
"Beauty in Short - Span Highway Bridges." Leslie R. Schureman ... 318
"Esthetic Design of Steel Structures." Aymar Embury, II ... 261
"Esthetics of Bridge Anchorages." Aymar Embury, II ... 85

ARITHMETIC
"Simplified Squaring of Numbers." Courtney L. Stone ... 271
Discussion: Antonio Di Lorenzo, 416; N. A. Carle, 479
See also Square Root

ART
Art helps photography ... 62

ASPHALT
"The Manufacture of Asphalt." Gene Abson ... 99, 352

AUSTRALIAN INSTITUTION OF ENGINEERS
American engineer attends conference ... 435

AUTOMOBILE PARKING
Parking practices, accidents, and safety ... 9

AUTOMOBILES
"Motor-Vehicle Taxation Rate Making." Lacey V. Murrow and Bertram H. Lindman ... 735
See also Motor Buses

AWARDS
American Institute of Steel Construction ... 435, 561
Arc Welding Foundation ... 368, 704, 787
John Fritz Medal ... 857
Traffic planning helps cities win Safety Council Awards ... 369
Washington Award ... 142, 435
See also American Society of Civil Engineers—Awards.

BEACHES
"California Beaches." George Hjelte ... 463
"Protecting Galveston Beach." C. C. Washington ... 461
"Shore Protective Work at Winthrop, Mass." Richard K. Hale ... 388

BEAMS
"Accurate Computations by Approximate Integration." David B. Hall ... 475
"Computations of Moments in Continuous Beams." Wilfred Merchant. (Brief abstract) ... 699
"Concrete Beams With Sheet-Steel Web Plates." J. T. Thompson, T. F. Hubbard, J. N. Fehrer ... 815
"General Formulas for Deflections of Cantilevers." R. Reuben Kohn ... 477
Discussion: A. W. Fischer, David A. Molitor, 758
"Shearing Stress in Steel Beams." Bruce Johnston ... 272
"Simplified Analysis of Fixed Beams." A. Floris ... 755
"Stresses in Continuous Beams from Deflecting Supports." Odd Albert ... 411
Discussion: A. W. Fischer, 617
"The Fixed Point Theory for Continuous Beams With Elastic Supports." Odd Albert ... 835
See also Girders

BENCHMARKS
"Precise Levels Run at Night." Robert C. Sheldon ... 801

BITUMINOUS MATERIALS
"Bituminous Macadam Road Building in Oregon." R. H. Baldock ... 315
See also Asphalt.

BOUNDARIES (INTERNATIONAL)
Engineering Work of the International Boundary Commission, United States and Mexico. (Brief résumé) ... 137

BREAKWATERS
"Shore Protective Works at Winthrop, Mass." Richard K. Hale ... 388

BRICK
"Brick Lining for Irrigation Canals." W. I. Gilson ... 656

BRIDGE PIERS
Pier extension to protect bridges from floods. Edward J. Bednarski ... 354
Piers and anchorage of the Thousand Islands International Bridge ... 408

BRIDGE TOWERS
"Esthetic Design of Steel Structures." Aymar Embury, II ... 261

BRIDGES
"Architectural Principles of Bridge Design." W. J. Watson ... 181
Discussion: Lawrence Grant White, 353; D. B. Steinman, 482; Cass Gilbert, Jr., 552
"Background of the Thousand Islands Bridge." William T. Field ... 715
"Beauty in Short - Span Highway Bridges." Leslie R. Schureman ... 318
Bibliography of suspension bridges issued. 368
"Construction of the Thousand Islands Bridge" ... 716
"Erecting the Hawkesbury Bridge, 1887–1889." E. K. Morse ... 682
"Esthetic Design of Steel Structures." Aymar Embury, II ... 261
"Esthetics of Bridge Anchorages." Aymar Embury, II ... 85
First iron railroad bridge in America ... 71
"New Life for Old Railroad Bridges." George G. Thomas ... 328
Notable bridges in Australia. D. B. Steinman ... 209
Pont d'Avignon ... 861
Preliminary Design of Suspension Bridges. Shortridge Hardesty and Harold E. Wessman (Brief résumé) ... 286
"See Here, Thou Stupid Villian, See Here." ... 72
"Settlement Studies of Structures." Gregory P. Tschebotareff ... 751
"The Overseas Railroad Becomes a Highway." B. M. Duncan ... 395
"The Proposed Mackinac Straits Bridge." Discussion: George T. Horton, 120; Charles F. Goodrich, 121; Carlton S. Proctor, 210
"The Thousand Islands International Bridge." D. B. Steinman ... 408
Unique bridge construction depicted ... 705
See also Trusses

BRIEF NOTES FROM HERE AND THERE
72, 143, 227, 298, 370, 436, 501, 562, 635, 705, 787

BUILDINGS
"A Foundation Primer." Jacob Feld ... 10
"All-Steel Exhibition Building in Germany." H. Orbanowski ... 330
"An All-Welded Multiple Story Building." Gilbert D. Fish ... 237

BUILDINGS (Continued)
"Building Regulations in the United States." Robins Fleming..... 730
"Problems in Structural-Steel Erection." William G. Rapp..... 15
"Settlement Studies of Structures." Gregory P. Tschebotareff..... 751
Why do structures settle?..... 14
See also Theatres

BUSES
See Motor Buses

BUTTRESSES
"Economical Buttress Spacing for Reinforced Concrete Dams." Franklin C. Rogers..... 545

CABLES
"Length of Suspended Cable Under Any System of Vertical Loads." Jeffrey B. Macphail..... 113

CAMPS, TOURIST
"Tourist Camps and Roadside Sanitation." Discussion: B. A. Poole, 118

CANAL LINING
"Brick Lining for Irrigation Canals." W. I. Gilson..... 656
"Machines and Methods for Canal Construction, Colorado River Aqueduct." W. L. Chadwick and G. E. Archibald... 104

CANALS
A study of vegetal channel linings..... 655
See also Irrigation Canals

CEMENT
"Concrete for the Kanawha River Project." John C. Sprague..... 797
"Cutting Costs in Concrete Construction." Ernst Gruenwald..... 243
Discussion: 354
See also Grouting

CHANNELS (WATERWAYS)
A study of vegetal channel linings..... 655
"Construction of Mississippi River Cut-offs." Harley B. Ferguson..... 725
"Effects of Mississippi River Cut-Offs." Harley B. Ferguson..... 826
"Spartanburg Outdoor Hydraulic Laboratory." Howard L. Cook..... 653
See also Water, Flow of, In Open Channels.

CHARTS (CALCULATING)
"Comprehensive Chart for Design of Concrete Members." Jean M. Bayot..... 207

CHICAGO ENGINEERS CLUB
Honors Edward Haupt..... 862

CITIES
"National Resources Committee's Urbanism study." Ladislas Segoe..... 198
See also Zoning of Cities

CITY PLANNING
"City Planning and Housing from a Municipal Viewpoint." T. T. McCrosky..... 169
"City Planning and Housing from a State-Wide Viewpoint." J. Nevin..... 172
"City Planning and the Engineer." Harold M. Lewis..... 569
For specialists in city planning..... 58
"National Resources Committee's Urbanism Study." Ladislas Segoe..... 198
"Recreational Planning for Urban Populations." Discussion: Arthur W. Dean, 210
"The City Plan of Tyler, Texas." O. H. Koch..... 251
Discussion: George H. Herrold, 415
See also Parks and Parkways

CIVIL ENGINEERING
"Ethics via Civil Engineering." W. E. Howland..... 643
"The Civil Engineer and Malaria Control." L. M. Clarkson..... 398
Discussion: 690
See also Engineers and Engineering

CLAY
"A Foundation Primer." Jacob Feld.... 10
"Settlement Studies on San Jacinto Monument." Raymond F. Dawson.. 589

COFFERDAMS
"'Third-Step' Construction at Bonneville Dam." B. E. Torpen and O. C. Hartman..... 311

COLLEGES AND UNIVERSITIES
Accredited engineering curricula..... 218
"What Should the Technical School Teach?" Discussion: Wm. R. Osgood, 35

COLUMNS
"Deflection of Free-End Column or Hanger with Eccentric Load." E. R. St. John..... 349
Discussion: Scott W. Orr, 617

CONCRETE
"Comprehensive Chart for Design of Concrete Members." Jean M. Bayot..... 207
"Concrete Beams with Sheet Steel Web Plates." J. T. Thompson, T. F. Hubbard, J. N. Fehrer..... 815
"Concrete for the Kanawha River Project." John C. Sprague..... 797
"Cutting Costs in Concrete Construction." Ernst Gruenwald..... 243
Discussion: Morris Goodkind, 354
"Diagonal Bending of Square Concrete Sections." Paul Andersen..... 549
"Equations for Weight Proportioning of Concrete Mixes." A. G. Schwartzenhauer..... 478

CONCRETE LINING
"Lining the Sunset Reservoir." R. B. Rothschild, Jr..... 670
"Machines and Methods for Canal Construction, Colorado River Aqueduct." W. L. Chadwick and G. E. Archibald.. 104

CONCRETE SLABS
Construction of paving slabs at Cajalco Reservoir..... 377
"Lining the Sunset Reservoir." R. B. Rothschild, Jr..... 670
Simplifying engineering formulas. B. J. Lambert..... 211

CONSTRUCTION EQUIPMENT
"Machines and Methods for Canal Construction, Colorado River Aqueduct." W. L. Chadwick and G. E. Archibald... 104
See also Cranes and Derricks

CONTRACTS
"A Legal Step Toward Better Contracts." Frederick W. Newton..... 381

CRANES AND DERRICKS
"Problems in Structural Steel Erection." William G. Rapp..... 15

CURRENT METERS
"Geological Survey Studies Surface Waters. C. G. Paulsen..... 247

CURVES
"A Simple Curve-Ranging Instrument." F. F. Ferguson..... 548
"Graphical String-Lining of Railroad Curves. John C. McCoy..... 347

CYLINDERS
"Computing Cylindrical Intersections." Arthur W. Lambert, Jr..... 268
Discussion: F. H. Cherry, 553

DAMS
Bureau of Reclamation issues new books on dams..... 435
"Concrete for the Kanawha River Project." John C. Sprague..... 797
"Construction Methods at Cajalco Reservoir." R. B. Ward..... 377
"Development of the Lower Colorado River." O. Laurgaard. (Brief résumé)..... 286
"Economical Buttress Spacing for Reinforced Concrete Dams." Franklin C. Rogers..... 545
"Stability Design of Concrete Dams." I. Nelidov. (Brief résumé)..... 287
"'Third-Step' Construction at Bonneville Dam." B. E. Torpen and O. C. Hartman..... 311
"Uplift Measurements at Holtwood Dam." Paul E. Gisiger..... 447
See also Spillways

DEPRECIATION
"Cost of Depreciation and Obsolescence." M. R. Scharff..... 179

DERRICKS
See Cranes and Derricks

DIESEL ENGINES
See Locomotives

DIKES
"Construction Methods at Cajalco Reservoir." R. B. Ward..... 377

DRAINAGE
"Drainage of Irrigated Lands." A. W. Walker..... 733
"Spartenburg Outdoor Hydraulic Laboratory." Howard L. Cook..... 653

DREDGES AND DREDGING
"Construction of Mississippi River Cut-Offs." Harley B. Ferguson..... 725
"Effects of Mississippi River Cut-Offs." Harley B. Ferguson..... 826

DRILLING AND BORING
"A Drilling Rack for Shaft Sinking." Sidney M. Marks..... 838

EARTH PRESSURE
"Formula for Passive Earth Pressure." Paul Andersen..... 32
Discussion: A. Floris, 209

EARTHWORK
"Construction Methods at Cajalco Reservoir." R. B. Ward..... 377
"The Scientific Method of Earthwork." Discussion: Paul Andersen, 120; Glennon Gilboy, 415

ECONOMICS
"Engineers and Economics." W. W. Horner..... 83
"Importance of the Highway Industry in Nation's Economy." Charles M. Upham..... 400
See also Employment: Public Works

EDUCATION
Chance and choice in engineering. R. L. Sackett..... 769
"Engineering Education in the Southeast." F. C. Snow..... 326
Non-technical phases of engineering discussed in E.C.P.D. report..... 287
Review of engineering education to be published by E.C.P.D..... 495
"The Role of the Library in Engineering Education and Research." Harrison W. Craver..... 473
Discussion: 616
"What Should the Technical School Teach?" Discussion: Wm. R. Osgood, 35.
See also Colleges and Universities

ELECTRIC POWER
"Elements of Power Cost." John C. Page..... 175

EMPLOYMENT
"Bargains in Engineers." Samuel M. Ellsworth..... 441
"Employment and the Engineer's Relation to It." William McClellan..... 430
"Make Work Relief Projects Worth While." American Engineering Council..... 428
"Putting the Best Foot Forward." Walter L. Fitzgerald..... 153
Discussion: Charles O'C. Sloane, 416; W. Edwin Thompson, 481
"Suggestions to the Young Engineer on Selling his Wares." P. M. Russell.... 426
See also Public Works

ENGINEERING DRAWINGS
"Simplifying Engineering Drawings." Otto Gottschalk..... 414

ENGINEERING EDUCATION
See Education

ENGINEERING FEES AND SALARIES
Progress on salary studies..... 285
Resolution adopted by Committee on Fees..... 763
Schedule of fees for structural and foundation engineering on government housing projects..... 621
"Sources of Income in the Engineering Profession, 1929 to 1934..... 290
Taxing officials' salaries. H. H. Sears... 479

ENGINEERING FOUNDATION
New officers of..... 847

ENGINEERING SOCIETIES
"An Organization of Junior Engineers." Alton C. Chick..... 739

ENGINEERING SOCIETIES LIBRARY
Papers filed in.....137, 286, 556, 699

ENGINEERS AND ENGINEERING
"A Young Engineer Takes Stock of His Profession." Wilfred Bauknight..... 375
"City Planning and the Engineer." Harold M. Lewis..... 569
"Engineering Among the Professions." Roy E. McFee..... 305
"Engineering Demands Conclusive Analysis." A. E. Morgan..... 795
"Engineering in This New Era." T. R. Agg..... 711

"Engineering Pioneering Since John Smeaton." Richard Shelton Kirby.... 26
Discussion: C. D. Purdon, 274
"Engineers and Economics." W. W. Horner.... 83
"From Farmer Boy to College Dean." Mortimer E. Cooley.... 90
"Improving the Economic Status of the Young Engineer." H. L. Fruend.... 420
"My Days of Apprenticeship." Robert Ridgway.... 601
News of Engineers.... 73, 144, 228, 298, 370, 436, 501, 562, 637, 705, 787, 862
Non-technical phases of engineering discussed in report of E.C.P.D.... 287
Report of Special Committee on Unionization.... 216
"Social Horizons of the Engineer." Discussion: Frank J. Hanrahan, 40; George Higgins, 276; Harry J. Engle, 480
"Some Engineering Beginnings." Discussion: H. B. Muckleston, 36
"The Architect and the Engineer." Aymar Embury, II.... 3
"The Balance Wheel." Allen J. Saville.. 235
Discussion: Walter H. Wheeler, 415
"The Engineer in Public Life." Robert Ridgway.... 1
"The Society as Leader of the Profession." Henry Earle Riggs.... 507
Western Local Sections discuss professional activities.... 622
Yes, there still is romance in the profession.... 500
See also Civil Engineering; Registration of Engineers

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT

Accredited engineering curricula.... 218
E.C.P.D. takes stock and looks ahead... 856
New officers of.... 857
Non technical phases of engineering discussed in report.... 287
Review of engineering education to be published by.... 495

EROSION

"Engineering in Erosion Control." Quincy C. Ayres.... 240
"Protecting Galveston Beach." C. C. Washington.... 461
"Shore Protective Works at Winthrop, Mass." Richard K. Hale.... 388
"Soil Conservation in the Texas Blacklands." H. O. Hill.... 109

ETHICS

A young engineer looks at the Code of Ethics. John M. Hayes.... 616
"Ethics via Civil Engineering." W. E. Howland.... 643

FATIGUE OF METALS

"Fatigue Tests of Riveted Joints." Wilbur M. Wilson.... 513
Discussion: 840

FEES

See Engineering Fees and Salaries

FILTERING MATERIALS

Original records on.... 64

FILTERS AND FILTRATION

"Ley Creek Sewage Treatment Works." G. D. Holmes.... 808

FISH

"Effects of Industrial Wastes and Sewage on Shellfish and Fin Fish." L. M. Fisher.... 454
Discussion: 551

FLOODS

"A Method of Flood Routing." I. H. Steinberg.... 476
Discussion: John W. Hackney, 689
"Appraisal of Unit-Graph Method of Flood Estimation." C. R. Pettis.... 114
"Construction of Mississippi River Cut-Offs." Harley B. Ferguson.... 725
"Effects of Mississippi River Cut-Offs." Harley B. Ferguson.... 826
"Operation of Sacandaga Reservoir," Edward H. Sargent.... 720
"Role of Highways in Recent California Floods." F. W. Panhorst.... 542
"Sixteen Years of Flood Control in the Miami Valley." C. H. Eiffert and C. S. Bennett.... 343
"Southern New York Flood Control Project." G. T. Nold.... 830
"The Barrier System of Flood Control." L. M. Winsor.... 675

FOOTINGS

"Design of Retaining Wall Footings." Harry E. Eckles.... 749
"Settlement Studies on San Jacinto Monument." Raymond F. Dawson... 589

FORECASTING

See Run-off: Weather Forecasting

FORESTS

"Pulp and Paper Industry moves South—Improving the Forest to Meet the New Demand." Lewis E. Staley.... 403

FORTIFICATIONS

"Artisans of Fort Marion." F. Hilton Crowe.... 297

FOUNDATIONS

"A Foundation Primer." Jacob Feld.... 10
"A Practicing Engineer Looks at Soil Mechanics." George L. Freeman.... 811
"An Elastic Theory for Stresses under a Foundation. (Brief résumé.) Walter H. Weiskopf.... 556
"Bituminous Macadam Road-Building in Oregon." R. H. Baldock.... 315
"Design of Retaining Wall Footings." Harry E. Eckles.... 749
"Experience in Driving and Testing Composite Piles." Henry D. Dewell... 574
"Lateral Resistance of Pile Foundations." (Brief résumé.) Hibbert Hill.... 137
"Repairs to the Substructure, Army Base, Boston, Mass." R. L. Miller. (Brief résumé.).... 287
"Settlement Studies of Structures." Gregory P. Tschebotareff.... 751
"Settlement Studies on San Jacinto Monument." Raymond F. Dawson... 589
"Structural Aspects of WGY's 625-Ft. Vertical Radiator." Edward G. Semon.... 531
See also Piles

FREIGHT

"Basic Factors in the Plight of the Railroads." S. R. Truesdell.... 804

GEORGIA SCHOOL OF TECHNOLOGY

"Engineering Education in the Southeast." F. C. Snow.... 326

GIRDERS

"Neutral Axis and Center of Gravity Do Not Coincide in a Riveted Girder." Elmer K. Timby.... 270
See also Beams

GLIDERS

Chanute gliders.... 38

GROINS

"Protecting Galveston Beach." C. C. Washington.... 461

GROUND WATER

"Ground-Water Supplies in Florida." V. T. Stringfield.... 457
Discussion: Charles E. Richheimer, 553; Herman Gunter, 688

GROUTING

Grouting at Cajalco Reservoir.... 379

GRAPHIC METHODS

"Appraisal of Unit-Graph Method of Flood Estimation." C. R. Pettis.... 114
"Graphical String-Lining of Railroad Curves." John C. McCoy.... 347
"Limits of Shadow Determined Graphically." R. S. Swinton.... 116
See also Charts, Calculating: Nomographs

HANDLING OF MATERIALS

"Problems in Structural-Steel Erection." William G. Rapp.... 15

HARBORS

"Developments at the Port of Halifax." Discussion: J. Stuart Crandall, 211
"Improvement of St. Johns River and Harbor." Gilbert A. Youngberg.... 391
Discussion: 552

HIGHWAYS

"Bituminous Macadam Road-Building in Oregon." R. H. Baldock.... 315
Comparison of railway and highway cost items.... 737
"Development of Highways in Mexico." R. L. Vazquez.... 189
Discussion: George J. Viertel, 480
"Divided Highways Are Safer Highways." Roger H. Gilman.... 258
Expenditures for construction and maintenance of highways in Mexico.... 192
Great benefits from a national highway. George O. Woodelton.... 274
"Highway Transportation since 1928." L. I. Hewes.... 585
"Highways from the User's Standpoint." Chester H. Gray.... 540
"Importance of the Highway Industry in Nation's Economy." Charles M. Upham.... 400
"Making Highway-Railroad Crossings Safer." A. Benesch.... 320
"Motor Vehicle Taxation Rate Making." Lacey V. Murrow and Bertram H. Lindman.... 735
"New Military Roads and Trails in Oahu." Robert S. Thomas.... 382
"Roads for Vicksburg National Military Park." F. W. Cron.... 745
"Role of Highways in Recent California Floods." F. W. Panhorst.... 542
"Safety in Design of Florida Highways." Harry J. Morrison.... 452
"Sampling and Testing Soils." W. H. Mills, Jr.... 443
"Soil Stabilization Methods." H. C. Weathers.... 445
"State-Wide Highway Planning Surveys." Albert C. Spann and Lee Wendelboe.... 658
"Tax Structure Analysis for Highway Planning." Conde B. McCullough.... 534
"Template for Rounding Cut Slopes in Highway Construction." Milton Harris.... 272
Discussion: Clifford B. Potts, 354
"The Express Road and the Highway System." Discussion: Robert B. Brooks, Ernst W. Goerner, 39; John S. Worley, 118.
"The Overseas Railroad Becomes a Highway." B. M. Duncan.... 395
"Thoroughfare Plans and Urban Areas." Discussion: A. B. Edwards, 122; Leslie G. Holleran, 124; W. W. Crosby, 276
"Traffic Provisions at New York World's Fair." J. P. Hogan.... 185
See also Pavement.

HOUSING

"City Planning and Housing from a Municipal Viewpoint." T. T. McCrosky.... 169
"City Planning and Housing from a State-Wide Viewpoint." J. Nevin.... 172
"Los Angeles Project for Housing Indigents." W. J. Fox.... 168
Schedule of fees for structural and foundation engineering on government housing projects.... 621

HYDRAULIC LABORATORIES

"A Compact Hydraulic Laboratory." William Morton.... 611
"Model Testing of Seaplane Hulls." John R. Dawson.... 596
"Spartanburg Outdoor Hydraulic Laboratory." Howard L. Cook.... 653

HYDRAULICS

J. Waldo Smith Fund to provide research fellowships in hydraulics.... 215
Report of Committee on Hydraulic Research.... 194
Schoklitsch's Wasserbau in English.... 72
"The Use and Trustworthiness of Small Scale Hydraulic Models." Paul W. Thompson.... 255
See also Hydraulic Laboratories: Models

HYDROGRAPHY

"The Work of the U. S. Lake Survey." C. R. Pettis.... 23

INCINERATORS

See Refuse Destructors: Sewage Incinerators

INDUSTRIAL SANITATION

"The Engineer in Industrial Sanitation." J. J. Bloomfield.... 167

INDUSTRIAL WASTE

"Effects of Industrial Wastes and Sewage on Shellfish and Fin Fish." L. M. Fisher.... 454
Discussion: 551

INDUSTRY

"Basic Factors in the Plight of the Railroads." S. R. Truesdell.... 804
See also Paper and Pulp Industry; Phosphate Industry

INSTITUTION OF CIVIL ENGINEERS

Publishes "Engineering Abstracts".... 705

INTERNATIONAL BOUNDARY COMMISSION

Engineering Work of the International Boundary Commission, United States and Mexico. (Brief résumé).... 137

INTERNATIONAL CONGRESS FOR APPLIED MECHANICS

Plans for Fifth Congress.... 70

INTERNATIONAL ENGINEERING CONGRESS
Society representatives at..... 635

IRRIGATION
"Drainage of Irrigated Lands." A. W. Walker..... 33
"Present-Day Irrigation Methods in China." O. J. Todd..... 527
"The Colorado-Big Thompson Project, Colorado." Porter J. Preston..... 517
"The History of Irrigation in Utah." O. W. Israelsen..... 672

IRRIGATION CANALS
"Brick Lining for Irrigation Canals." W. I. Gilson..... 656
"Desilting Works for the All-American Canal." D. M. Forester..... 649
"Variable Multiple-Weir Canal Drop." D. A. Buzzell and R. D. Lebsack..... 115

JETTIES
"Improvement of St. Johns River and Harbor." Gilbert A. Youngberg..... 391
Discussion: 552

JOINTS
"An All-welded Multiple Story Building." Gilbert D. Fish..... 237

JUNIOR ENGINEERING SOCIETY OF RHODE ISLAND
"An Organization of Junior Engineers." Alton C. Chick..... 739

LAKES
"Compensatory Works for St. Clair River." Discussion: Louis E. Ayres, 37; Lake Ben Morrow..... 561
"The Work of the U. S. Lake Survey." C. R. Pettis..... 23

LAW
"A Legal Step Toward Better Contracts." Frederick W. Newton..... 381
See also Registration of Engineers

LIBRARIES
"The Role of the Library in Engineering Education and Research." Harrison W. Craver..... 473
Discussion: Robins Fleming, 616

LIEGE SCHOOL OF MINES
Centenary celebrated..... 298

LOCKS
"Concrete for the Kanawha River Project." John C. Sprague..... 797

LOCOMOTIVES
Contrast of 100 years..... 750
"Diesel and Turbo-Electric Streamliners." C. P. Kahler..... 509
"Light-Weight Diesel-Electric Trains." Ralph Budd..... 592

LOUISIANA ENGINEERING SOCIETY
Louisiana engineers to meet January 7–8.. 59

MALARIA
"The Civil Engineer and Malaria Control." L. M. Clarkson..... 398
Discussion: H. D. Peters, 690

MAPS
"Aerial Photographic Mapping by U. S. Geological Survey—Development of Equipment and Methods." Joseph Hyde Pratt..... 661
"Mapping in Duval County, Fla." Arthur N. Sollee..... 451
Mapping With the Multiplex Aeroprojector." W. S. Higginson..... 663
Policies and prospects in national mapping. William Bowie..... 552
"Progress of Control and Mapping in Florida." G. D. Barnhart..... 386
Road map of hydraulic engineering..... 862
"Taking Stock of National Mapping." William Bowie..... 266
"Use of Aerial Mapping in Soil Conservation." W. C. Lowdermilk..... 605

MARINE BORERS
"Recent Increase in Marine Borer Activity. Discussion: Francis L. Sellew, 122; John N. Ferguson, 351; Asa H. Morril, 353

MASONRY
Constructing rubble-concrete masonry for flood control works..... 678

MATHEMATICS
"Accurate Computations by Approximate Integration." David B. Hall.... 475
See also Algebra: Arithmetic

MEASUREMENT, LINEAR
Data sought on effects of shortening the inch..... 787

MEMORIALS
Benjamin Franklin attends dedication of Benjamin Franklin Memorial..... 500
See also Monuments

METEOROLOGY
Report of Committee on Meteorology... 196
See also Floods: Rainfall

MILITARY PARKS
See Parks and Parkways

MODELS
"Model Testing of Seaplane Hulls." John R. Dawson..... 596
"Notes on the Accuracy of Movable-Bed Hydraulic Models." Joe W. Johnson.. 410
"Settlement Stresses Found With a Model." Discussion: Anders Bull, 40
"Small-Scale Simulation of Tidal Phenomena." Joseph B. Tiffany, Jr..... 537
"Southern New York Flood Control Project." G. T. Nold..... 830
"The Use and Trustworthiness of Small Scale Hydraulic Models." Paul W. Thompson..... 255
"Variable Multiple-Weir Canal Drop." D. A. Buzzell and R. D. Lebsack..... 115

MONUMENTS
"Settlement Studies on San Jacinto Monument." Raymond F. Dawson 589

MOTOR BUSES
"The City Transit and Traffic Problems." Alfred Brahdy..... 307

NATIONAL COUNCIL OF STATE BOARDS OF ENGINEERING EXAMINERS
Annual Meeting..... 861

NATIONAL RESOURCES COMMITTEE
Developments in federal state and regional planning..... 71
"National Resources Committees' Urbanism Study." Ladislas Segoe..... 198

NATIONAL SAFETY COUNCIL
Traffic planning helps cities win Safety Council awards..... 369

NAVY YARDS
"A Suggestion for Improving the Mississippi River and Providing for an Inland Navy Yard." (Brief résumé) G. H. Bayles 556

NEW YORK WORLD'S FAIR
"Five Thousand Years from Now." Maurice A. Hecht..... 704
"Traffic Provisions at New York World's Fair." J. P. Hogan..... 185

NOMOGRAPHS
"Diagram for Use with Cross Method Simplifies Solution of Flow Networks." Eldon R. Dodge..... 350

PAGE OF SPECIAL INTEREST
(Adv. Sect., p. 5), Twilight Silhouettes (Jan.), A Temple to the Gods (Feb.), Water Power (Mar.), Symphony in Steel (Apr.), Simplicity of Design Artistically Blended to Natural Setting (May), Croton Lake Bridge (June) Westward (July), New 200-in. Telescope (Aug.), New Day in Chicago (Sept.), Unique Construction Job (Oct.), San Francisco–Oakland Bay Bridge. (Nov.), Pont d' Avignon (Dec.)

PAPER AND PULP INDUSTRY
"Pulp and Paper Industry Moves South—Improving the Forest to Meet the New Demand." Lewis E. Staley... 403
"Pulp and Paper Industry Moves South—Recent Developments and their Significance." Warren T. White. 402

PARKS AMD PARKWAYS
"Roads for Vicksburg National Military Park" F. W. Cron..... 745
"The City Plan of Tyler, Texas." O. H. Koch..... 251
Discussion: 415

PAVEMENT
"Bituminous Macadam Road-Building in Oregon." R. H. Baldock..... 315
Some early types of paving in Philadelphia..... 142
"The Manufacture of Asphalt." Gene Abson..... 99, 352

PHOSPHATE INDUSTRY
"Development of Florida's Phosphate Industry." H. D. Mendenhall..... 464

PHOTOELASTICITY
"New Universal Straining Frame Aids Photoelastic Research." H. E. Wessman..... 614
"Photoelastic Analysis of Vierendeel Trusses." Max M. Frocht and M. M. Leven..... 686

PHOTOGRAPHY
Art helps photography..... 62

PILES
"A Practicing Engineer Looks at Soil Mechanics" George L. Freeman..... 811
"Diagonal Bending of Square Concrete Sections." Paul Andersen..... 549
"Experience in Driving and Testing Composite Piles." Henry D. Dewell..... 574
Lateral Resistance of Pile Foundations. (Brief résumé). Hibbert Hill..... 137

PIPE
"A Drumhead Pipe Stopper." H. D. Hurley..... 33

PIPE LINES
"Large Delivery Lines for the Colorado River Aqueduct System." Julian Hinds..... 469

PORTS
See Harbors

POWER COST
"Cost of Combined Energy Generation." E. B. Whitman..... 178
"Cost of Depreciation and Obsolescence." M. R. Scharff..... 179
"Cost of Energy Generation—Miscellaneous Comments." W. F. Uhl..... 180
"Cost of Heat-Generated Energy." C. F. Hirshfeld and R. M. VanDuzer, Jr. 176
"Cost of Hydro-Generated Energy." H. K. Barrows..... 177
"Elements of Power Cost." J. C. Page.... 175

POWER PLANTS
"Initial Investigations and Economical Planning of Hydro-Electric Plants." A. T. Larned..... 819
"Water Power in Brazil." A. W. K. Billings..... 520
See also Power Cost

PRIVIES
"West Virginia's Rural Sanitation Program." H. K. Gidley..... 599

PUBLIC HEALTH
"Full-Time Health Service and Travel Safety." Discussion: Henry F. Vaughan, 274

PUBLIC UTILITIES
A modern fable with apologies to Aesop. Frank W. Herring..... 296
"Need for Subsurface Utility Planning." Discussion: L. G. Lenhardt, 37; L. R. Mapes, J. B. Gordon, 119; Arthur W. Consoer, 352
"Principles of Subsurface Utility Planning." Discussion: George M. Shepard, 38
"Utility Planning for Greendale, Wis." Walter E. Kroening and Frank L. Dieter..... 94
See also Power Plants: Railroads: Water Works

PUBLIC WORKS
"Bargains in Engineers." Samuel M. Ellsworth..... 441
"Engineers and Economics." W. W. Horner..... 83
"Make Work Relief Projects Worth While." American Engineering Council 428
See also United States Government

PULP MILLS
See Paper and Pulp Industry

RADIO ANTENNAS
"Structural Aspects of WGY's 625-Ft. Vertical Radiator." Edward G. Semon..... 531

RADIO TOWERS
"Structural Aspects of WGY's 625-Ft. Vertical Radiator." Edward G. Semon..... 531

RAILROAD CROSSINGS
"Making Highway-Railroad Crossings Safer." A. Benesch..... 320

RAILROADS

"Basic Factors in the Plight of the Railroads." S. R. Truesdell 804
Comparison of railway and highway cost items 737
Curious railways of other days. E. E. R. Tratman 690
"Diesel and Turbo-Electric Streamliners." C. P. Kahler 509
"Engineering Pioneering Since John Smeaton." Richard Shelton Kirby. Discussion: 274 26
"Graphical String-Lining of Railroad Curves." John C. McCoy 347
"The Overseas Railroad Becomes a Highway." B. M. Duncan 395
See also Locomotives: Railroad Crossings: Rails: Subways: Track: Trains

RAILS

"Life of Rail on Steam Railroads." George W. Hunt 31

RAINFALL

"Engineering in Erosion Control." Quincy C. Ayres 240
"Runoff of Florida Streams." Donald S. Wallace. Discussion: 617 405
"Sixteen Years of Flood Control in the Miami Valley." C. H. Eiffert and C. S. Bennett 343
"Weather Bureau's Contributions to Hydrology." Willis Roy Gregg. Discussion: 481 323

RECREATION

Development of recreational areas in New Hampshire. J. Y. Jewett 124
"Recreational Planning for Urban Populations." Discussion: Arthur W. Dean, 210

REFUSE DESTRUCTORS

"Modern Incinerator Practice." Harrison P. Eddy, Jr. 645
"Utility Planning for Greendale, Wis." Walter E. Kroening and Frank L. Dieter 94

REFUSE DISPOSAL

"Report of Committee on Technical Aspects of Refuse Disposal." 202
See also Industrial Waste: Sewage Disposal

REGIONAL PLANNING

Developments in federal state, and regional planning 71

REGISTRATION OF ENGINEERS

Kentucky adopts registration law 286
Model law reprinted 699
Passage of Texas license law 63
Rhode Island adopts license law for engineers 435

RESEARCH

"The Role of the Library in Engineering Education and Research." Harrison W. Craver. Discussion: 616 473

RESERVOIRS

"A Method of Flood Routing." I. H. Steinberg. Discussion: 689 476
"Construction Methods at Cajalco Reservoir." R. B. Ward 377
"Lining the Sunset Reservoir." R. B. Rothschild, Jr. 670
"Operation of Sacandaga Reservoir." Edward H. Sargent 720
"Soil Conservation in the Texas Blacklands." H. O. Hill 109
"Southern New York Flood Control Project." G. T. Nold 830
"Water Power in Brazil." A. W. K. Billings 520
See also Dams

RETAINING WALLS

"Design of Retaining Wall Footings." Harry E. Eckles 749
"Developments at the Port of Halifax." Discussion: 211
"Shore Protective Work at Winthrop, Mass." Richard K. Hale 388

RIVERS

"A Method of Flood Routing." I. H. Steinberg. Discussion: 689 476
"A Suggestion for Improving the Mississippi River and Providing for an Inland Navy Yard." (Brief résumé.) G. H. Bayles 556
"Compensatory Works for St. Clair River." Discussion: Louis E. Ayres, 37
"Concrete for the Kanawha River Project." John C. Sprague 797
"Construction of Mississippi River Cut-Offs." Harley B. Ferguson 725
"Development of the Lower Colorado River." O. Laurgaard. (Brief résumé) 286
"Effects of Mississippi River Cut-Offs." Harley B. Ferguson 826
"Improvement of St. Johns River and Harbor." Gilbert A. Youngberg. Discussion: Earl North, 552 391
"Operation of Sacandaga Reservoir." Edward H. Sargent 720
"Runoff of Florida Streams." Donald S. Wallace. Discussion: 617 405
"Sixteen Years of Flood Control in the Miami Valley." C. H. Eiffert and C. S. Bennett 343
"Southern New York Flood Control Project." G. T. Nold 830
"The Barrier System of Flood Control." L. M. Winsor 675
"Weather Bureau's Contributions to Hydrology." Willis Ray Gregg. Discussion: 481 323
"Where Rolls the Oregon—An Outline of the Power Possibilities of the Columbia River and Its Tributaries." (Brief résumé.) B. E. Torpen 137
See also Water, Flow Of, In Open Channels: Water Pollution

RIVETED JOINTS

"Fatigue Tests of Riveted Joints." Wilbur M. Wilson. Discussion: Jonathon Jones, 759; R. K. Bernhard, 840 513
"Neutral Axis and Center of Gravity Do Not Coincide in a Riveted Girder." Elmer K. Timby 270

ROOFS

"All-Steel Exhibition Buildings in Germany." H. Orbanowski 330
Constructing the columns and roof deck of the Sunset Reservoir 671

RUN-OFF

"Engineering in Erosion Control." Quincy C. Ayres 240
"Runoff of Florida Streams." Donald S. Wallace. Discussion: Herman Gunter, 617 405
"Sixteen Years of Flood Control in the Miami Valley." C. H. Eiffert and C. S. Bennett 343
"Spartanburg Outdoor Hydraulic Laboratory." Howard L. Cook 653
"Weather Bureau's Contributions to Hydrology." Willis Roy Gregg. Discussion: 481 323

SAFETY

"Safety in Design of Florida Highways." Harry J. Morrison 452

SALARIES

See Engineering Fees and Salaries

SAND

"A Foundation Primer." Jacob Feld 10

SANITARY ENGINEERING

Sanitary engineering not a new science. Paul M. La Bach 841

SEAPLANES

"Model Testing of Seaplane Hulls." John R. Dawson 596

SEEPAGE

"Drainage of Irrigated Lands." A. W. Walker 733

SEWAGE DISPOSAL

"Background and Development of Detroit's Sewage Disposal Project." Clarence W. Hubbell 466
"Ley Creek Sewage Treatment Works." G. D. Holmes 808
"Sewage Disposal at Denver, Colo." E. B. Black 578
Sewage treatment plant at Buffalo, N. Y. Samuel A. Greeley 276
"Status of Sewage Disposal in Western States." Dana E. Kepner 608
"The Detroit Sewage Treatment Plant." Clarence W. Hubbell 667
"Utility Planning for Greendale, Wis." Walter E. Kroening and Frank L. Dieter 94
"West Virginia's Rural Sanitation Program." H. K Gidley 599

SEWAGE INCINERATORS

"Modern Incinerator Practice." Harrison P. Eddy, Jr. 645

SEWERAGE

"A Drumhead Pipe Stopper." H. D. Hurley 33
"Sewerage Problems of Miami, Fla." C. S. Nichols. Discussion: Morris N. Lipp, 760 459

SHADOWS

"Limits of Shadow Determined Graphically." R. S. Swinton 116

SHAFT SINKING

"A Drilling Rack for Shaft Sinking." Sidney M. Marks 838

SHEET STEEL

"Concrete Beams With Sheet Steel Web Plates." J. T. Thompson, T. F. Hubbard, T. N. Fehrer 815

SHORE PROTECTION (OCEAN)

"California Beaches." George Hjelte 463
"Protecting Galveston Beach." C. C. Washington 461
"Shore Protective Works at Winthrop, Mass." Richard K. Hale 388
See also Jetties

SILT

"A Foundation Primer." Jacob Feld 10
"Desilting Works for the All-American Canal." D. M. Forester 649
"Development of the Lower Colorado River." O. Laurgaard. (Brief résumé) 286
"Soil Conservation in the Texas Blacklands." H. O. Hill 109

SLIDE RULE

"A Handy Slide-Rule Short Cut." Discussion: Donald D. Curtis 124
"Samuel Pepys, Slide-Rule Expert." Jerome Fee 754
"Solving Quadratics by Slide Rule." Joseph Barnett 117

SOIL CONVSERVATION

"Engineering in Erosion Control." Quincy C. Ayres 240
"Soil Conservation in the Texas Blacklands." H. O. Hill 109
"Spartenburg Outdoor Hydraulic Laboratory." Howard L. Cook 653
"Use of Aerial Mapping in Soil Conservation." W. C. Lowdermilk 605
Water and soil conservation in arid regions 674

SOILS

"A Foundation Primer." Jacob Feld 10
"A Practicing Engineer Looks at Soil Mechanics" George L. Freeman 811
"Sampling and Testing Soils." W. H. Mills, Jr. 443
"Settlement Studies of Structures." Gregory P. Tschebotareff 751
"Settlement Studies on San Jacinto Monument." Raymond F. Dawson 589
"Soil Stabilization Methods." H. C. Weathers 445

SPILLWAYS

"Southern New York Flood Control Project." G. T. Nold 830
"The Barrier System of Flood Control." L. M. Winsor 675
"'Third Step' Construction at Bonneville Dam." B. E. Torpen and O. C. Hartman 311

SQUARE ROOT

"Calculation of Square Root by Successive Approximations." George H. Dell. Discussion: Antonio Di Lorenzo, 758 613

STATE PLANNING

Developments in federal, state and regional planning 71

STEAM POWER

"Cost of Heat Generated Energy." C. F. Hirshfeld and R. M. VanDuzer, Jr. 176
"Initial Investigations and Economical Planning of Hydro-Electric Plants." A. T. Larned 819

STEEL

"All-Steel Exhibition Building in Germany." H Orbanowski 330
"An All-Welded Multiple Story Building." Gilbert D. Fish 237
"Esthetic Design of Steel Structures." Aymar Embury, II 261
"Problems in Structural-Steel Erection." William G. Rapp 15
"Suggestions on the Maintenance of Steel Windows." Chester L. Dalzell 413
See also Sheet Steel

STONE, CRUSHED

The world's first stone crusher. Richard S. Kirby and Joseph W. Roe..... 786

STRAIN ROSETTES

"The Equiangular Strain Rosette." Raymond D. Mindlin..... 546
Discussion: Walter Gray, 615; Raymond D. Mindlin, 840

STRAINS AND STRESSES

"An Elastic Theory for Stresses Under a Foundation." (Brief résumé). Walter H. Weiskopf..... 556
"Basic Formulas for Combined Flexure and Direct Stress." Discussion: K. L. DeBlois, 122; Francis L. Schaffel, 275; Francis P. Witmer, 353
"Deflection of Free-End Column or Hanger with Eccentric Load." E. R. St. John..... 349
Discussion: 617
"Design of Retaining Wall Footings." Harry E. Eckles..... 749
"Diagonal Bending of Square Concrete Sections." Paul Andersen..... 549
"General Formulas for Deflections of Cantilevers." R. Reuben Kohn..... 477
Discussion: 758
"Picture Presentation of Membrane Analogy for Design in Torque." R. S. Swinton..... 346
"Settlement Stresses Found With a Model." Discussion: Anders Bull,.. 40
"Shearing Stress in Steel Beams." Bruce Johnston..... 272
Simplifying engineering formulas. B. J. Lambert..... 211
"Stresses in Continuous Beams from Deflecting Supports." Odd Albert..... 411
Discussion: 617
"Stresses in the Floor of an Elevated Cylindrical Tank and the Intermediate Floors of the Supporting Tower." (Brief abstract). B. A. Smith..... 699

STREET NUMBERING

"Street-Numbering System for Large Cities." R. R. Lyman and A. Z. Richards, Jr..... 205
Discussion: Karl W. Lemcke, 416

STREETS

"The City Plan of Tyler Texas." O. H. Koch..... 251
Discussion: 415
See also Pavement

STRENGTH OF MATERIALS

"Three Centuries of Structural Analysis." S. C. Hollister..... 822
"Picture Presentation of Membrane Analogy for Design in Torque." R. S. Swinton..... 346

STRUCTURES, THEORY OF

"Report of Committee on Fundamentals Controlling Structural Design"..... 201
"Three Centuries of Structural Analysis." S. C. Hollister..... 822
See also Strains and Stresses

SUBWAYS

New York's first subway..... 274
"The City Transit and Traffic Problem," Alfred Brahdy..... 307

SURVEYING

"Adjusting Old Surveys." Ralph E. Wendt..... 336
"Land Surveying in Texas." W. A. Rounds..... 722
Manual on surveying terms issued..... 220
"Mapping in Duval County, Fla." Arthur N. Sollee..... 451
Policies and prospects in national mapping. William Bowie..... 552
"Precise Levels Run at Night." Robert C. Sheldon..... 801
"Progress of Control and Mapping in Florida." G. D. Barnhart..... 386
Discussion: William L. Sawyer, 551
"Retracing Old Land Lines." Wylie W. Gillespie..... 333
Discussion: Winston E. Wheat, 615
"Taking Stock of National Mapping." William Bowie..... 266
"Transforming from Plane to Geodetic Coordinates." A. C. Kalbfleisch..... 612
Discussion: J. L. Speert, 841
"The Work of the U. S. Lake Survey." C. R. Pettis..... 23

SURVEYING, AERIAL

"Aerial Photographic Mapping by U. S. Geological Survey—Development of Equipment and Methods." Joseph Hyde Pratt..... 661
"Aluminum Mountings for Aerial Survey Mosaics." John P. Koch..... 206
Discussion: 416
"Mapping with the Multiplex Aeroprojector." W. S. Higginson..... 663
"Use of Aerial Mapping in Soil Conservation." W. C. Lowdermilk..... 605

SURVEYING INSTRUMENTS

"A Simple Curve-Ranging Instrument." F. F. Ferguson..... 548
"Aerial Photographic Mapping by U. S. Geological Survey—Development of Equipment and Methods." Joseph Hyde Pratt..... 661
"Mapping With the Multiplex Aeroprojector." W. S. Higginson..... 663
"Template for Rounding Cut Slopes in Highway Construction." Milton Harris..... 272
Discussion: 354

SURVEYING TEACHERS' CONFERENCE

Account of..... 369

TANKS

"Stresses in the Floor of an Elevated Cylindrical Tank and the Intermediate Floors of the Supporting Tower." (Brief abstract). B. A. Smith..... 699

TAXATION

"Highway Traffic and Motor Vehicle Taxation." Discussion: Roy W. Crum, 35
"Highways from the Users' Standpoint." Chester H. Gray..... 540
"Motor-Vehicle Taxation Rate Making." Lacey V. Murrow and Bertram H. Lindman..... 735
"Tax Structure Analysis for Highway Planning." Conde B. McCullough.... 534
Taxing officials salaries. H. H. Sears.... 479

TELESCOPES

"Structural Features of the 200-Inch Telescope for Mt. Palomar Observatory." Mark Serrurier..... 524

TERRACING

"Soil Conservation in the Texas Blacklands." H. O. Hill..... 109

THEATERS

"Miscellaneous Practices in Theater Construction." George J. Viertel.... 839

TIDES

"Small-Scale Simulation of Tidal Phenomena." Joseph B. Tiffany, Jr..... 537

TIMBER

"Pulp and Paper Industry Moves South—Improving the Forest to Meet the New Demand." Lewis E. Staley..... 403
Timber a renewable crop..... 40

TOPOGRAPHIC MAPPING

See Maps

TOWING TANKS

"Model Testing of Seaplane Hulls." John R. Dawson..... 596

TRACK

Report of Committee on Stresses in Railroad Track..... 197

TRADE WASTE

See Industrial Waste

TRAFFIC

"Elements of Traffic Planning." D. Grant Mickle..... 5
Discussion: George H. Herrold, 352
"Highway Traffic and Motor Vehicle Taxation." Discussion: Roy W. Crum, 35
"State-Wide Highway Planning Surveys." Albert C. Spann and Lee Wendelboe..... 658
"The City Transit and Traffic Problem." Alfred Brahdy..... 307
"Traffic Control Problem at Rochester, N.Y." Leon R. Brown..... 833
Traffic planning helps cities win Safety Council awards..... 369
"Traffic Problems in Metropolitan Areas." E. J. Reeder..... 192
"Traffic Provisions at New York World's Fair." J. P. Hogan..... 185
See also Transportation

TRAINS

"Diesel and Turbo-Electric Streamliners." C. P. Kahler..... 509
"Light-Weight Diesel-Electric Trains." Ralph Budd..... 592

TRANSPORTATION

"A Decade of Progress in Air Transportation." S. R. Newman..... 679
"Basic Factors in the Plight of the Railroads." S. R. Truesdell..... 804
"Highway Transportation Since 1928." L. I. Hewes..... 585
"The City Transit and Traffic Problem." Alfred Brahdy..... 307
"Traffic Provisions at New York World's Fair." J. P. Hogan..... 185
See also Traffic

TRIANGLES

"The Other Side of a Flat Right Triangle." Leonard C. Jordan..... 688

TRUSSES

"Figuring Length of Brace for Howe Truss." Discussion: C. D. Purdon, 35; Louis L. Huot, 351
Howe-truss angle-block problem. T. Kennard Thomson..... 123
"Photoelastic Analysis of Vierendeel Trusses." Max M. Frocht and M. M. Leven..... 686
See also Bridges

TUNNELS

A tunnel under the Straits of Mackinac... 120
"The Delaware Water Supply System of the City of New York." Roger W. Armstrong..... 581
Which is the largest tunnel? Charles W. Comstock..... 39

TURBINES (WATER)

"Cavitation and Its Effect on Turbines." Giro G. Kubo..... 768

UNDERGROUND UTILITIES

See Public Utilites

UNITED ENGINEERING TRUSTEES, INC.

Reports good year..... 852

UNITED STATES GOVERNMENT

"Advantages of a Federal Department of Public Works." G. W. Burpee..... 159
"Aerial Photographic Mapping by U. S. Geological Survey." A Symposium: J. H. Pratt, W. S. Higginson..... 663
American Engineering Council News..... 222, 292, 362, 428, 495, 630, 770, 839
Bureau of Reclamation issues new books on dams..... 435
"Federal Department of Public Works—History of the Movement." A. J. Hammond..... 155
"Federal Department of Public Works—Some Factors Bearing on the Proposal." D. H. Sawyer..... 162
Federal Public Works Department impracticable..... 624
"Geological Survey Studies Surface Waters." C. G. Paulsen..... 247
Hydraulic model studies undertaken at U. S. Waterways Experiment Station.. 537
"New Military Roads and Trails in Oahu." Robert S. Thomas..... 382
Schedule of fees for structural and foundation engineering on government housing projects approved..... 621
"Sources of Income in the Engineering Profession. 1929 to 1934." U. S. Bureau of Labor Statistics..... 290
"The Work of the U. S. Lake Survey." C. R. Pettis..... 23
"Weather Bureau's Contributions to Hydrology." Willis Ray Gregg..... 323
Discussion: 481
See also National Resources Committee: Public Works.

UPLIFT (HYDROSTATIC)

"Uplift Measurements at Holtwood Dam." Paul E. Gisiger..... 447

VIADUCTS

See Bridges

WATER, FLOW OF, IN OPEN CHANNELS

"Analysis of the Positive Surge in a Rectangular Open Channel." E. H. Taylor 685
"Flow on Steep Slopes." Discussion: I. M. Nelidov, 121
"Geological Survey Studies Surface Waters." C. G. Paulsen..... 247
"Southern New York Flood Control Project." G. T. Nold..... 830

WATER, FLOW OF, IN PIPES

"Diagram for Use with Cross Method Simplifies Solution of Flow Networks." Eldon R. Dodge..... 350

WATER, FLOW OF, OVER DAMS AND WEIRS

"Determination of a Formula for the 120-Deg V-Notch Weir." R. A. Hertzler... 756
"Variable Multiple-Weir Canal Drop." D. A. Buzzell and R. D. Lebsack..... 115

WATER POLLUTION

"Background and Development of Detroit's Sewage Disposal Project." Clarence W. Hubbell..... 466
"Effects of Industrial Wastes and Sewage on Shellfish and Fin Fish." L. M. Fisher..... 454
Discussion: Clyde C. Kennedy, 551
"Progress in Control of Water Pollution in New York State." Anselmo F. Dappert..... 742
Resolution on..... 218
Sanitary Engineering Division adopts resolution on..... 218
"Status of Sewage Disposal in Western States." Dana E. Kepner..... 608

WATER POWER

"Cost of Hydro-Generated Energy." H. K. Barrows..... 177
"Operation of Sacandaga Reservoir." Edward H. Sargent..... 720
Planning a Hydro-Electric Investigation (Brief résumé). C. G. King..... 286
"The Colorado-Big Thompson Project, Colorado." Porter J. Preston..... 517
"Water Power in Brazil." A. W. K. Billings..... 520
Where Rolls the Oregon. An Outline of the Power Possibilities of the Columbia River and Its Tributaries. (Brief résumé). B. E. Torpen..... 137

WATER PURIFICATION

"Treatment of Florida's Artesian and Surface Water." Malcolm Pirnie..... 339
Discussion: 479, 550
See also Filtering Materials

WATER SOFTENING

"Treatment of Florida's Artesian and Surface Water." Malcolm Pirnie..... 339
Discussion: 479, 550

WATER SUPPLY

"Geological Survey Studies Surface Waters." C. G. Paulsen..... 247
"Ground-Water Supplies in Florida." V. T. Stringfield..... 457
Discussion: 553, 688
"Safe Roadside Water Supplies in Ohio."
Discussion: E. S. Tisdale, 36
"The Delaware Water Supply System of the City of New York." Roger W. Armstrong..... 581
"Tourist Camps and Roadside Sanitation." Discussion: 118
"Treatment of Florida's Artesian and Surface Water." Malcolm Pirnie..... 339
Discussion: Charles E. Richheimer, 479; John F. Reynolds, 550
See also Irrigation: Water Pollution

WATER WORKS

"Utility Planning for Greendale, Wis." Walter E. Kroening and Frank L. Dieter..... 94
See also Aqueducts: Dams: Filtering Materials: Reservoirs: Water Supply

WAVES

"Small-Scale Simulation of Tidal Phenomena." Joseph B. Tiffany, Jr..... 537
See also Shore Protection (Ocean)

WEATHER FORECASTING

"Weather Bureau's Contributions to Hydrology." Willis Ray Gregg..... 323
Discussion: Robins Fleming, 481

WEIRS

See Water, Flow of, Over Dams and Weirs

WELDING

"An All-Welded Multiple Story Building." Gilbert D. Fish..... 237
"Large Delivery Lines for the Colorado River Aqueduct System." Julian Hinds..... 469
"New Life for Old Railroad Bridges." George G. Thomas..... 328

WELLS

Saline infiltration in Florida wells..... 553

WINDOWS

"Suggestions on the Maintenance of Steel Windows." Chester L. Dalzell..... 413

WISE AND OTHERWISE

70, 142, 227, 296

WORKS PROGRESS ADMINISTRATION

"Bargains in Engineers." Samuel M. Ellsworth..... 441

ZONING OF CITIES

"The City Plan of Tyler, Texas." O. H. Koch..... 251
"Thoroughfare Plans and Urban Areas." Discussion: W. W. Crosby, 276

NAME INDEX

ABSON, GENE

"The Manufacture of Asphalt".....99, 352

AGG, T. R.

"Engineering in This New Era"..... 711

ALBERT, ODD

"Stresses in Continuous Beams from Deflecting Supports"..... 411
"The Fixed Point Theory for Continuous Beams With Elastic Supports"..... 835

ANDERSEN, PAUL

"Diagonal Bending of Square Concrete Sections"..... 549
"Formula for Passive Earth Pressure".... 32

ARCHIBALD, G. E.

"Machines and Methods for Canal Construction, Colorado River Aqueduct".. 104

ARMSTRONG, ROGER W.

"The Delaware Water Supply System of the City of New York"..... 581

ATWOOD, WILLIAM G.

Attends conference of Australian Institution of Engineers..... 435

AYRES, LOUIS E.

"Problems Before the Society"..... 764

AYRES, QUINCY C.

"Engineering in Erosion Control"..... 240

BAKER, D. M.

"Report of Committee on Meteorological Data"..... 196

BALDOCK, R. H.

"Bituminous Macadam Road-Building in Oregon"..... 315

BARNETT, JOSEPH

"Solving Quadratics by Slide Rule"..... 117

BARNHART, G. D.

"Progress of Control and Mapping in Florida"..... 386

BARROWS, H. K.

"Cost of Hydro-Generated Energy"..... 177

BAUKNIGHT, WILFRED

"A Young Engineer Takes Stock of His Profession"..... 375

BAYLES, G. H.

"A Suggestion for Improving the Mississippi River and Providing for an Inland Navy Yard." (Brief résumé)... 556

BAYOT, JEAN M.

"Comprehensive Chart for Design of Concrete Members"..... 207

BENESCH, A.

"Making Highway-Railroad Crossings Safer"..... 320

BENNETT, C. S.

"Sixteen Years of Flood Control in the Miami Valley"..... 343

BILLINGS, A. W. K.

"Water Power in Brazil"..... 520

BLACK, E. B.

"Sewage Disposal at Denver, Colo."..... 578

BLANEY, HARRY F.

Activities of Committee on Conservation of Water..... 700

BLOOMFIELD, J. J.

"The Engineer in Industrial Sanitation".. 167

BOWIE, WILLIAM

Honored by Queen of the Netherlands.... 143
Policies and prospects in national mapping..... 552
"Taking Stock of National Mapping".... 266

BRAHDY, ALFRED

"The City Transit and Traffic Problem".. 307

BRES, EDWARD S.

Biographical sketch of..... 846

BROOKS, ROBERT B.

Biographical sketch of..... 846

BROWN, LEON R.

"How Rochester Handles Its Traffic Problem"..... 833

BUDD, RALPH

"Light-Weight Diesel-Electric Trains"... 592

BURPEE, G. W.

"Advantages of a Federal Department of Public Works"..... 159

BUZZELL, D. A.

"Variable Multiple-Weir Canal Drop".... 115

CHADWICK, W. L.

"Machines and Methods for Canal Construction, Colorado River Aqueduct".... 104

CHANUTE, OCTAVE

"Early Presidents of the Society"
Discussion: J. E. Graf, 38; Henry E. Riggs, 120

CHICK, ALTON C.

"An Organization of Junior Engineers"... 739

CLARKE, THOMAS CURTIS

"Early Presidents of the Society"..... 360

CLARKSON, L. M.

"The Civil Engineer and Malaria Control"..... 398

COHEN, MENDES

"Early Presidents of the Society"..... 61

COMSTOCK, CHARLES W.

Which is the largest tunnel?..... 39

COOK, HOWARD L.

"Spartanburg Outdoor Hydraulic Laboratory"..... 653

COOLEY, MORTIMER E.

"From Farmer Boy to College Dean"..... 90

CORWIN, T. J., JR.

"San Francisco Section"..... 131

CRAIGHILL, WILLIAM PRICE

"Early Presidents of the Society".....219, 354
Discussion: Harry Frazier, 354

CRAVER, HARRISON W.

"The Role of the Library in Engineering Education and Research"..... 473

CROES, J. J. R.

"Early Presidents of the Society"..... 702

CRON, F. W.

"Roads for Vicksburg National Military Park"..... 745

CROWE, F. HILTON

"Artisans of Fort Marion"..... 297

DALZELL, CHESTER L.

"Suggestions on the Maintenance of Steel Windows"..... 413

DAPPERT, ANSELMO F.

"Progress in Control of Water Pollution in New York State"..... 742

DARLING, WILLIAM L.

Obituary..... 854

DAVID, DOUGLAS C.

Awarded Freeman Scholarship..... 556

DAVISON, GEORGE S.

Brief sketch of..... 54
Honored by Pittsburgh Section..... 358

DAWSON, JOHN R.

"Model Testing of Seaplane Hulls"..... 596

DAWSON, RAYMOND F.

"Settlement Studies on San Jacinto Monument"..... 589

DELL, GEORGE H.

"Calculation of Square Root by Successive Approximations"..... 613

DEWELL, HENRY D.
"Experience in Driving and Testing Composite Piles"..... 574

DIETER, FRANK L.
"Utility Planning for Greendale, Wis."... 94

DODGE, ELDON R.
"Diagram for Use with Cross Method Simplifies Solution of Flow Networks".. 350

DUNCAN, B. M.
"The Overseas Railroad Becomes a Highway"..... 395

ECKLES, HARRY E.
"Design of Retaining Wall Footings"..... 749

EDDY, HARRISON P., JR.
"Modern Incinerator Practice"..... 645
"Report of Committee on Technical Aspects of Refuse Disposal"..... 202

EIFFERT, C. H.
"Sixteen Years of Flood Control in the Miami Valley"..... 343

ELLSWORTH, SAMUEL M.
"Bargains in Engineers"..... 441

EMBURY, AYMAR, II
"Esthetic Design of Steel Structures"... 261
"Esthetics of Bridge Anchorages"..... 85
"The Architect and the Engineer"..... 3

FEE, JEROME
"Samuel Pepys, Slide-Rule Expert"..... 754

FEHRER, JOHN N.
"Concrete Beams with Sheet-Steel Web Plates"..... 815

FELD, JACOB
"A Foundation Primer"..... 10

FENKELL, GEORGE E.
Honored on retirement..... 561

FEREBEE, JAMES L.
Biographical sketch of..... 844

FERGUSON, F. F.
"A Simple Curve-Ranging Instrument".. 548

FERGUSON, HARLEY B.
"Construction of Mississippi River Cut-Offs"..... 725
"Effects of Mississippi River Cut-Offs"... 826

FIELD, WILLIAM T.
"Background of the Thousand Islands Bridge"..... 715

FISH, GILBERT D.
"An All-Welded Multi-Story Building"... 237

FISHER, L. M.
"Effects of Industrial Wastes and Sewage on Shellfish and Fin Fish"..... 454

FITZGERALD, DESMOND
"Early Presidents of the Society"..... 557
Discussion: Charles W. Sherman, 759; J. B. Babcock, 760

FITZGERALD, WALTER L.
"Putting the Best Foot Forward"..... 153

FLAD, EDWARD
"St. Louis Section"..... 131

FLEMING, ROBINS
"Building Regulations in the United States"..... 730

FLORIS, A.
"Simplified Analysis of Fixed Beams"... 755

FORESTER, D. M.
"Desilting Works for the All-American Canal"..... 649

FOX, W. J.
"Los Angeles Project for Housing Indigents"..... 168

FRANKLIN, BENJAMIN
Attends dedication of Benjamin Franklin Memorial..... 500

FRARY, FRANCIS C.
"Aluminum—How and Why"..... 19

FRASER, ANDREW
"Sources of Income in the Engineering Profession, 1929–1934"..... 290

FREEMAN, GEORGE L.
"A Practicing Engineer Looks at Soil Mechanics"..... 811

FROCHT, MAX M.
"Photoelastic Analysis of Vierendeel Trusses"..... 686

FRUEND, H. L.
"Improving the Economic Status of the Young Engineer"..... 420

FTELEY, ALPHONSE
"Early Presidents of the Society"..... 493

GALILEI, GALILEO
"Three Centuries of Structural Analysis" 822

GIDLEY, H. K.
"West Virginia's Rural Sanitation Program"..... 599

GILLESPIE, WYLIE W.
"Problems of Florida Surveyors—Retracing Old Land Lines"..... 333

GILMAN, ROGER H.
"Divided Highways Are Safer Highways"..... 258

GILSON, W. I.
"Brick Lining for Irrigation Canals"..... 656

GISIGER, PAUL E.
"Uplift Measurements at Holtwood Dam"..... 447

GOTTSCHALK, OTTO
"Simplifying Engineering Drawings"..... 414

GRAY, CHESTER H.
"Highways from the Users' Standpoint".. 540

GREGG, WILLIS RAY
"Weather Bureau's Contributions to Hydrology"..... 323

GRUENWALD, ERNST
"Cutting Costs in Concrete Construction"..... 243

GUTMANN, I.
Schoklitsch's "Wasserbau" in English.... 73

HALE, RICHARD K.
"Shore Protective Work at Winthrop, Mass."..... 388

HALL, DAVID B.
"Accurate Computations by Approximate Integration"..... 475

HAMMOND, A. J.
"Federal Department of Public Works—History of the Movement"..... 155

HARDESTY, SHORTRIDGE
"Preliminary Design of Suspension Bridges." (Brief résumé)..... 286

HARRIS, MILTON
"Template for Rounding Cut Slopes in Highway Construction"..... 272

HARROD, BENJAMIN MORGAN
"Early Presidents of the Society"..... 424

HARTMAN, O. C.
"'Third-Step' Construction at Bonneville Dam"..... 311

HAUPT, EDWARD
Honored by Chicago Engineers' Club... 862

HAYES, JOHN M.
A young engineer looks at the code of ethics..... 616

HECHT, MAURICE A.
"Five Thousand Years from Now"..... 704

HERRING, FRANK W.
A modern fable with apologies to Aesop... 296

HERTZLER, R. A.
"Determination of a Formula for the 120-Deg F-Notch Weir"..... 756

HEWES, L. I.
"Highway Transportation Since 1928".... 585

HIGGINSON, W. S.
"Mapping with the Multiplex Aeroprojector"..... 663

HILL, H. O.
"Soil Conservation in the Texas Blacklands"..... 109

HILL, HIBBERT
"Lateral Resistance of Pile Foundations." (Brief résumé)..... 137

HILL, LOUIS C.
Obituary..... 851

HINDS, JULIAN
"Large Delivery Lines for the Colorado River Aqueduct System"..... 469

HIRSHFELD, C. F.
"Cost of Heat-Generated Energy"..... 176

HJELTE, GEORGE
"California Beaches"..... 463

HOGAN, J. P.
"Traffic Provisions at New York World's Fair"..... 185

HOLLISTER, S. C.
"Three Centuries of Structural Analysis" 822

HOLMES, GLENN D.
"Ley Creek Sewage Treatment Works".. 808

HORNER, W. W.
"Engineers and Economics"..... 83

HOVEY, OTIS E.
Brief sketch of..... 56

HOWLAND, W. E.
"Ethics via Civil Engineering"..... 643

HUBBARD, THOMAS F.
"Concrete Beams With Sheet-Steel Web Plates"..... 815

HUBBELL, CLARENCE W.
"Background and Development of Detroit's Sewage Disposal Project"..... 466
"The Detroit Sewage Treatment Plant".. 667

HUDSON, H. W.
Biographical sketch of..... 844

HUNT, GEORGE W.
"Life of Rail on Steam Railroads"..... 31

HURLEY, H. D.
"A Drumhead Pipe Stopper"..... 33

ISRAELSEN, O. W.
"The History of Irrigation in Utah"..... 672

JEWETT, FRANK BALDWIN
Recipient of Washington Award.....142, 435
Recipient of John Fritz Medal..... 857

JEWETT, J. Y.
Development of recreational areas in New Hampshire..... 124

JOHNSON, JOE W.
"Notes on the Accuracy of Movable-Bed Hydraulic Models"..... 410

JOHNSTON, BRUCE
"Shearing Stress in Steel Beams"..... 273

JOHNSTONE, DON
Editorship of "Civil Engineering"..... 289

JORDAN, LEONARD C.
"The Other Side of a Flat Right Triangle"..... 688

KAHLER, C. P.
"Diesel and Turbo-Electric Streamliners"..... 509

KALBFLEISCH, A. C.
"Transforming from Plane to Geodetic Coordinates"..... 612

KARPOV, A. V.
"Report of Committee on Fundamentals Controlling Structural Design"..... 201

KEPNER, DANA E.
"Status of Sewage Disposal in Western States"..... 608

KHUEN, RICHARD JR.
Former Board member dies..... 768

KING, C. G.
"Planning a Hydro-Electric Investigation." (Brief résumé)..... 286

KIRBY, RICHARD SHELTON
"Engineering Pioneering Since John Smeaton" ... 26
The world's first stone crusher ... 786

KNAPPEN, T. T.
"Soil Mechanics and Foundations Division Active" ... 358

KOCH, JOHN P.
"Aluminum Mountings for Aerial Survey Mosaics" ... 206

KOCH, O. H.
"The City Plan of Tyler, Texas" ... 251

KOHN, R. REUBEN
"General Formulas for Deflections of Cantilevers" ... 477

KROENING, WALTER E.
"Utility Planning for Greendale, Wis." ... 94

KUBO, GIRO G.
"Cavitation and Its Effect on Turbines" ... 768

LA BACH, PAUL M.
Sanitary engineering not a new science ... 841

LAMBERT, ARTHUR W., JR.
"Computing Cylindrical Intersections" ... 268

LAMBERT, B. J.
Simplifying engineering formulas ... 211

LARNED, A. T.
"Initial Investigations and Economical Planning of Hydro-Electric Plants" ... 819

LAURGAARD, O.
"Development of the Lower Colorado River." (Brief résumé) ... 286

LAWSON, L. M.
Arbiter in land dispute with Mexico ... 862
"Engineering Work of the International Boundary Commission" ... 137

LEBSACK, R. D.
"Variable Multiple-Weir Canal Drop" ... 115

LEEDS, CHARLES T.
Biographical sketch of ... 845

LEVEN, M. M.
"Photoelastic Analysis of Vierendeel Trusses" ... 686

LEWIS, HAROLD M.
Biographical sketch of ... 845
"City Planning and the Engineer" ... 569

LINDMAN, BERTRAM H.
"Motor-Vehicle Taxation Rate Making" ... 735

LOWDERMILK, W. C.
"Use of Aerial Mapping in Soil Conservation" ... 605

LYMAN, R. R.
"Street-Numbering System for Large Cities" ... 205

MacPHAIL, JEFFREY B.
"Length of Suspended Cable Under Any System of Vertical Loads" ... 113

McCLELLAN, WILLIAM
"Employment and the Engineer's Relation to It" ... 430

McCOY, JOHN C.
"Graphical String-Lining of Railroad Curves" ... 347

McCROSKY, T. T.
"City Planning and Housing from a Municipal Viewpoint" ... 169

McCULLOUGH, CONDE B.
"Tax Structure Analysis for Highway Planning" ... 534

McDONALD, HUNTER
Brief sketch of ... 55

McFEE, ROY E.
"Engineering Among the Professions" ... 305

MARKS, SIDNEY M.
"A Drilling Rack for Shaft Sinking" ... 838

MENDENHALL, H. D.
"Development of Florida's Phosphate Industry" ... 464

MERCHANT, WILFRED
"Computations of Moments in Continuous Beams" ... 699

METCALF, WILLIAM
"Early Presidents of the Society" ... 136

MICKLE, D. GRANT
"Elements of Traffic Planning" ... 5

MILLER, R. L.
"Repairs to the Substructure, Army Base, Boston, Mass." ... 287

MILLS, W. H., Jr.
"Sampling and Testing Soils" ... 443

MINDLIN, RAYMOND D.
"The Equiangular Strain-Rosette" ... 546

MOORE, ROBERT
"Early Presidents of the Society" ... 766

MORGAN, ARTHUR E.
"Engineering Demands Conclusive Analysis" ... 795
Resolution adopted relating to ... 359

MORISON, GEORGE SHATTUCK
"Early Presidents of the Society" ... 288

MORRISON, HARRY J.
"Safety in Design of Florida Highways" ... 452

MORROW, BEN
Lake Ben Morrow ... 561

MORSE, E. K.
"Erecting the Hawkesbury Bridge, 1887–1889" ... 682

MORTON, WILLIAM
"A Compact Hydraulic Laboratory" ... 611

MURROW, LACEY V.
"Motor-Vehicle Taxation Rate Making" ... 735

NEEDLES, ENOCH R.
"The Civil Engineering Student and the Society" ... 359

NELIDOV, I.
"Stability Design of Concrete Dams." (Brief résumé) ... 287

NEVIN, JOSEPH
"City Planning and Housing from a State-Wide Viewpoint" ... 172

NEWMAN, S. R.
"A Decade of Progress in Air Transportation" ... 679

NEWTON, FREDERICK W.
"A Legal Step Toward Better Contracts" ... 381

NICHOLS, C. S.
"Sewerage Problems of Miami, Fla." ... 459

NOLD, GEORGE J.
"Southern New York Flood Control Project" ... 830

ORBANOWSKI, H.
"All-Steel Exhibition Building in Germany" ... 330

PAGE, J. C.
"Elements of Power Cost" ... 175

PANHORST, F. W.
"Role of Highways in Recent California Floods" ... 542

PAULSEN, C. G.
"Geological Survey Studies Surface Waters" ... 247

PEGRAM, GEORGE H.
Death announced ... 59
Obituary ... 129

PEPYS, SAMUEL
"Samuel Pepys, Slide-Rule Expert" Jerome Fee ... 754

PETTIS, C. R.
"Appraisal of Unit-Graph Method of Flood Estimation" ... 114
"The Work of the U. S. Lake Survey" ... 23

PHELPS, E. B.
"Aspects of Air Sanitation" ... 166

PIRNIE, MALCOLM
"Treatment of Florida's Artesian and Surface Water Supplies" ... 339

POOLE, C. ARTHUR
Board commemorates ... 221

PRATT, JOSEPH HYDE
"Aerial Photographic Mapping by U. S. Geological Survey—Development of Equipment and Methods" ... 661

PRESTON, PORTER J.
"The Colorado-Big Thompson Project, Colorado" ... 517

PROCTOR, C. S.
"Activities of Soil Mechanics and Foundations Division ... 855

PURDON, C. D.
"St. Louis Section" ... 131

RAPP, WILLIAM G.
"Problems in Structural-Steel Erection" ... 15

REEDER, E. J.
"Traffic Problems in Metropolitan Areas" 192

REPPERT, CHARLES M.
Biographical sketch of ... 843

RICE, CALVIN W.
Memorial to ... 58

RICHARDS, A. Z., JR.
"Street-Numbering System for Large Cities" ... 205

RICKEY, J. W.
"Executive Committee of the Power Division Report" ... 201

RIDGWAY, ROBERT
"My Days of Apprenticeship" ... 601
"The Engineer in Public Life" ... 1

RIGGS, HENRY E.
A busy President ... 494
President for 1938 ... 125
"The Society as Leader of the Profession" ... 507

ROE, JOSEPH W.
The world's first stone crusher ... 786

ROGERS, FRANKLIN C.
"Economical Buttress Spacing for Reinforced Concrete Dams" ... 545

ROTHSCHILD, R. B., JR.
"Lining the Sunset Reservoir" ... 670

ROUNDS, W. A.
"Land Surveying in Texas" ... 722

RUSSELL, S. BENT
"St. Louis Section" ... 131

RUSSELL, P. M.
"Suggestions to the Young Engineer on Selling His Wares" ... 426

SACKETT, R. L.
Chance and choice in engineering ... 769

ST. JOHN, E. R.
"Deflection of Free-End Column or Hanger with Eccentric Load" ... 349

SARGENT, EDWARD H.
"Operation of Sacandaga Reservoir" ... 720

SAVILLE, ALLEN J.
"The Balance Wheel" ... 235

SAWIN, SANFORD W.
Biographical sketch of ... 845

SAWYER, DONALD H.
Biographical sketch of ... 843
Official nominee for President of Am. Soc. C.E. ... 761
"Some Factors Bearing on the Proposal of a Federal Department of Public Works" ... 162

SCHARFF, M. R.
"Cost of Depreciation and Obsolescence" 179

SCHUREMAN, LESLIE R.
"Beauty in Short - Span Highway Bridges" ... 318

SCHWARTZENHAUER, A. G.
"Equations for Weight Proportioning of Concrete Mixes"... 478

SEARS, H. H.
Taxing officials' salaries... 479

SEGOE, L.
"National Resources Committee's Urbanism Study"... 198

SEMON, EDWARD G
"Structural Aspects of WGY's 625-Ft. Vertical Radiator"... 531

SERRURIER, MARK
"Structural Features of the 200-Inch Telescope for Mt. Palomar Observatory"... 524

SHELDON, ROBERT C.
"Precise Levels Run at Night"... 801

SMEATON, JOHN
"Engineering Pioneering Since John Smeaton." Richard Shelton Kirby.... 26
Discussion: 274

SMITH, B. A.
"Stresses in the Floor of an Elevated Cylindrical Tank and the Intermediate Floors of the Supporting Tower." (Brief abstract)... 699

SMITH, J. WALDO
Fund to provide research fellowships in hydraulics... 215

SNOW, F. C.
"Engineering Education in the Southeast"... 326

SOLLEE, ARTHUR N.
"Mapping in Duval County, Fla."... 451

SPANN, ALBERT C
"State-Wide Highway Planning Surveys"... 658

SPANN, WILLIAM M.
"Local Section Administration"... 850

SPRAGUE, JOHN C.
"Concrete for the Kanawha River Project"... 797

STALEY, LEWIS E.
"Pulp and Paper Industry Moves South—Improving the Forest to Meet the New Demand"... 403

STEINBERG, I. H.
"A Method of Flood Routing"... 476

STEINMAN, D. B.
"Construction of the Thousand Islands Bridge"... 716
Notable bridges in Australia... 209
"The Thousand Islands International Bridge"... 408

STEVENS, J. C.
"Report of Special Committee on Hydraulic Research"... 194

STONE, COURTNEY, L.
"Simplified Squaring of Numbers"... 271

STRINGFIELD, V. T.
"Ground-Water Supplies in Florida"... 457

SWINTON, R. S.
"Limits of Shadow Determined Graphically"... 116
"Picture Presentation of Membrane Analogy for Design in Torque"... 346

TALBOT, A. N.
Receives new honor from Alma Mater.... 368
"Report of Committee on Stresses in Railroad Track"... 197

TAYLOR, E. H.
"Analysis of the Positive Surge in a Rectangular Open Channel"... 685

THOMAS, GEORGE G.
"New Life for Old Railroad Bridges"... 328

THOMAS, ROBERT S.
"New Military Roads and Trails in Oahu"... 382

THOMPSON, PAUL W.
"The Use and Trustworthiness of Small-Scale Hydraulic Models"... 255

THOMPSON, J. TRUEMAN
"Concrete Beams with Sheet-Steel Web Plates"... 815

THOMSON, T. KENNARD
Howe truss angle-block problem... 123

TIFFANY, JOSEPH B., JR.
"Small-Scale Simulation of Tidal Phenomena"... 537

TIMBY, ELMER K.
"Neutral Axis and Center of Gravity Do Not Coincide in a Riveted Girder"... 270

TODD, O. J.
"Present-Day Irrigation Methods in China"... 527

TORPEN, B. E.
"'Third-Step' Construction at Bonneville Dam"... 311
Where Rolls the Oregon—An Outline of the Power Possibilities of the Columbia River and Its Tributaries. (Brief résumé)... 137

TRUESDELL, S. R.
"Basic Factors in the Plight of the Railroads"... 804

TSCHEBOTAREFF, GREGORY P.
"Settlement Studies of Structures"... 751

UHL, W. F.
"Cost of Energy Generation—Miscellaneous Comments"... 180

UPHAM, CHARLES M.
"Importance of the Highway Industry in Nation's Economy"... 400

VANDUZER, R. M., JR.
"Cost of Heat-Generated Energy"... 176

VAN LIEW, R. E.
"Colorado Section"... 132

VAZQUEZ, R. L.
"Development of Highways in Mexico".. 189

VIERTEL, GEORGE J.
"Miscellaneous Practices in Theater Construction"... 839

WADDELL, J. A. L.
Obituary... 286

WADSWORTH, RALPH G.
"Publicizing Local Section Activities"... 633

WALKER, A. W.
"Drainage of Irrigated Lands"... 733

WALL, EDWARD E.
"St. Louis Section"... 131

WALLACE, DONALD S.
"Runoff of Florida Streams"... 405

WALLACE, JOHN FINDLEY
"Early Presidents of the Society"... 628
Discussion: T. K. Thomson, 758

WARD, R. B.
"Construction Methods at Cajalco Reservoir"... 377

WARNER, E. L.
"Administering a Local Section"... 632

WASHINGTON, C. C.
"Protecting Galveston Beach"... 461

WATSON, W. J.
"Architectural Principles of Bridge Design"... 181

WEATHERS, H. C.
"Towards Better Low-Cost Roads-Soil Stabilization Methods"... 445

WEISKOPF, WALTER H.
"An Elastic Theory for Stresses Under a Foundation." (Brief résumé)... 556

WENDELBOE, LEE
"State-Wide Highway Planning Surveys"... 658

WENDT, RALPH E.
"Adjusting Old Surveys"... 336

WESSMAN, H. E.
"New Universal Straining Frame Aids Photoelastic Research"... 614
"Preliminary Design of Suspension Bridges." (Brief résumé)... 286

WHITE, WARREN T.
"Pulp and Paper Industry Moves South — Recent Developments and Their Significance"... 402

WHITMAN, E. B.
"Cost of Combined Energy Generation".. 178

WILCOXEN, L. C.
District 7 enjoys meeting at Houghton, Mich... 698

WILSON, WILBUR M.
"Fatigue Tests of Riveted Joints"... 513

WINSOR, L. M.
"The Barrier System of Flood Control"... 675

WISE, JOSEPH A.
"Segmental Division for Arch Analysis".. 34

WORCESTER, JOSEPH R.
Brief sketch of... 57

YOUNGBERG, GILBERT A.
"Improvement of St. John's River and Harbor"... 391